

## PATENT COOPERATION TREATY

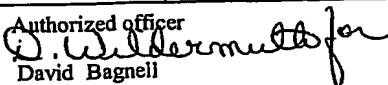
## PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY  
(Chapter II of the Patent Cooperation Treaty)  
(PCT Article 36 and Rule 70)

REC'D 13 JUN 2005

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Applicant's or agent's file reference 25791.241.02	<b>FOR FURTHER ACTION</b>		See Form PCT/IPEA/416
International application No. PCT/US04/08030	International filing date (day/month/year) 17 March 2004 (17.03.2004)	Priority date (day/month/year) 17 March 2003 (17.03.2003)	
International Patent Classification (IPC) or national classification and IPC IPC(7): E21B 43/10, 23/00 and US Cl.: 166/380, 207, 214, 250.01			
Applicant ENVENTURE GLOBAL TECHNOLOGY			
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <u>3</u> sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> (sent to the applicant and to the International Bureau) a total of <u>1</u> sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>			
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the report</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>			
Date of submission of the demand 01 October 2004 (01.10.2004)		Date of completion of this report 15 March 2005 (15.03.2005)	
Name and mailing address of the IPEA/ US Mail Stop PCT, Attn: IPEA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230		Authorized officer  David Bagnell Telephone No. 571-272-3600	

Form PCT/IPEA/409 (cover sheet)(January 2004)

CORRECTED VERSION

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/US04/08030

## Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This report is based on translations from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of:

- ☐ international search (under Rules 12.3 and 23.1(b))  
☐ publication of the international application (under Rule 12.4)  
☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

☐ the international application as originally filed/furnished

☒ the description:

pages 1-34 as originally filed/furnished  
pages\* NONE received by this Authority on \_\_\_\_\_  
pages\* NONE received by this Authority on \_\_\_\_\_

☒ the claims:

pages 35-42 as originally filed/furnished  
pages\* NONE as amended (together with any statement) under Article 19  
pages\* NONE received by this Authority on \_\_\_\_\_  
pages\* 42/11 received by this Authority on 05 April 2005 (05.04.2005)

☒ the drawings:

pages 1-6 as originally filed/furnished  
pages\* NONE received by this Authority on \_\_\_\_\_  
pages\* NONE received by this Authority on \_\_\_\_\_

☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.

3. ☒ The amendments have resulted in the cancellation of:

- ☒ the description, pages None  
☒ the claims, Nos. None  
☒ the drawings, sheets/figs None  
☒ the sequence listing (*specify*): None  
☒ any table(s) related to the sequence listing (*specify*): None

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages \_\_\_\_\_  
☐ the claims, Nos. \_\_\_\_\_  
☐ the drawings, sheets/figs \_\_\_\_\_  
☐ the sequence listing (*specify*): \_\_\_\_\_  
☐ any table(s) related to the sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.  
PCT/US04/08030**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. Statement**

Novelty (N)	Claims <u>1-33</u>	YES
	Claims <u>NONE</u>	NO
Inventive Step (IS)	Claims <u>1-33</u>	YES
	Claims <u>NONE</u>	NO
Industrial Applicability (IA)	Claims <u>1-33</u>	YES
	Claims <u>NONE</u>	NO

**2. Citations and Explanations (Rule 70.7)**

Claims 1-3 meet the criteria set out in PCT Article 33(2)-(3), because the prior art does not have an early enough publication date, and therefore does not teach or fairly suggest an adaptive expansion device that senses operating conditions during expansion and adjusts the spring and damping rate of the expansion device based on the sensed conditions.

Claims 4-6 meet the criteria set out in PCT Article 33(2)-(3), because the prior art does not have an early enough publication date, and therefore does not teach or fairly suggest an adaptive expansion device that senses operating conditions during expansion and adjusts a frequency characteristic of the expansion device based on the sensed conditions.

Claims 7-12 meet the criteria set out in PCT Article 33(2)-(3), because the prior art does not teach or fairly suggest an adaptive expansion device that has one or more expansion device segments and sensors that sense operating conditions during expansion and sense overlapping ends of tubular members or the threaded connection between tubular members.

Claims 13-18 meet the criteria set out in PCT Article 33(2)-(3), because the prior art does not have an early enough publication date, and therefore does not teach or fairly suggest an adaptive expansion device that senses operating conditions during expansion and senses the subterranean formation, and then adjusts an operational characteristic of the expansion device based on the sensed conditions and/or the sensed formation.

Claims 19-33 meet the criteria set out in PCT Article 33(2)-(3), because the prior art does not teach or fairly suggest any of the limitations recited by these claims that depend from the aforementioned independent claims.

Claims 1-33 meet the criteria set out in PCT Article 33(4), and thus have industrial applicability because the subject matter claimed can be made or used in industry.

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31. (Previously Presented) The apparatus of claims 1, 4, 7, 10, 13, or 16, wherein one or more of the expansion device segments comprise:

one or more expansion surfaces; and

an actuator coupled to the expansion surfaces;

wherein the actuator comprises a plurality of degrees of freedom;

wherein the actuator comprises one or more rotary actuators; and

wherein one or more of the expansion device segments comprise:

one or more hydro-forming devices.

32. (Previously Presented) The method of claims 2, 5, 8, 11, 14, or 17, wherein radially expanding and plastically deforming the tubular member using the adaptive expansion device comprises:

displacing the adaptive expansion device relative to the tubular member in the longitudinal direction;

wherein radially expanding and plastically deforming the tubular member using the adaptive expansion device comprises:

rotating the adaptive expansion device relative to the tubular member; and

wherein radially expanding and plastically deforming the tubular member using the adaptive expansion device comprises:

applying a pressurized fluid to the interior surface of the tubular member.

33. (Previously Presented) The system of claims 3, 6, 9, 12, 15, or 18, wherein the means for radially expanding and plastically deforming the tubular member using the adaptive expansion device comprises:

means for displacing the adaptive expansion device;

wherein the means for displacing the adaptive expansion device comprises a plurality of degrees of freedom; and

wherein the means for radially expanding and plastically deforming the tubular member using the adaptive expansion device comprises:

means for radially expanding and plastically deforming the tubular member using a hydro-forming device.

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AMENDED SHEET